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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/748,684	FITZMAURICE ET AL.	
	Examiner	Art Unit	
	STEPHEN G. SHERMAN	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 June 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/14/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the amendment filed 14 October 2008. Claims 1-41 are pending.

Response to Arguments

2. Applicant's arguments filed with respect to the 112,first paragraph of claim 32, the objection to the drawings with respect to the limitations of claim 32, the objections to the specification regarding "computer readable storage", and the prior art rejections of claims 1-38 have been fully considered but they are not persuasive.

On page 8, second paragraph of the response the applicant argues against the objection to the drawings with respect to the features of independent claim 32. The applicant states that Figure 11A shows the respective limitations, however, the examiner finds no such support in the specification to support this assertion. Paragraph [0045] of the specification describes Figure 11 and makes no mention of a finger arc or of "independent finger motion". Therefore, the objection to the drawings and the 112, first paragraph rejections are maintained relative to claim 32.

On page 8, fourth paragraph of the response the applicant argues against the objection to claim 35 and states that paragraph 0040 and Figure 4 of the specification provide support for "computer readable storage", however, neither paragraph 0040 or Figure 4 recite anything about computer readable storage, but rather just state "storage"

and thus the specification does not provide antecedent basis for the claim terminology "computer readable storage".

On the bottom of page 8 and continuing onto page 9 of the response the applicant argues against the 112, first paragraph rejection of claims 32 and 33 by stating that paragraph [0044] of the specification describes an anti-arc, anti-curve or counter-arc that allows for the added motion of a wrist and/or fingers and thus a person of ordinary skill in the art would be able to limit it to only finger motion. The examiner respectfully disagrees. The specification states that the finger motion is "added" (to the motion of the elbow) and thus it is not only independent finger motion as claimed because it is an addition of the elbow and the fingers. Just because one of ordinary skill in the art could modify the specification does not mean that the specification has support for such claimed limitations. Further the applicant points to originally filed claim 7, which states "comprises one of...a finger motion", however, the problem is not that there is a finger motion curve but that the applicant is trying to claim ONLY independent finger motion, which is not supported by the specification. Original claim 7 states "comprises" meaning that the arc can comprise finger motion but is not limited to "only" finger motion as currently claimed, which is why the 112, first paragraph rejection exists.

On page 10 of the response the applicant argues the rejection of claims 32-33 and 38 using the Anderson references by stating that Anderson discloses "without lifting a wrist" which doesn't mean without moving a wrist and as such the controls 31a-31h would require wrist motion and thus Anderson doesn't have only independent finger motion as in claim 32. Further, the applicant states for claim 38 that the examiner has

stated that Anderson's teaching of not lifting a wrist was used to teach both only independent finger motion and only rotation of the user's wrist. The examiner respectfully disagrees. The applicant has either not properly read, not properly understood or completely ignored what the examiner stated in the rejection of claims 32 and 38. The examiner used the teaching of Anderson of "not lifting a wrist" to state that for claim 32, the controls 32 such as the ones located near the cent would only be reachable by using "only" independent finger motion if the user can't lift their wrist and as such Anderson discloses these controls using only independent finger motion and further for claim 38, the control 31 would be reachable by "only" using the user's wrist motion if the user can't lift their wrist and as such Anderson discloses these controls using only rotation of a user's wrist. The applicant completely ignored what the examiner stated in the rejection and has not properly responded the examiner's rejection, and as explained above, the rejection is proper. Further, since the applicant only discloses a single interface using all of their "motion arcs" their interface as well would require more than one motion to be used (see Figure 11A), and as such only parts of the menu require "only" certain motions, which his exactly what Anderson teaches.

On page 11 the applicant argues the rejection against the combination of Anderson et al. and Miettinen. First the applicant argues that Miettinen discloses two distinct arcs and also that Miettinen teaches away from a wrist rotation as both movements described in Miettinen are larger sweeping type movements. First of all, Miettinen discloses an interface using both the elbow and the shoulder and as such the

interface uses the "combination" of the elbow and shoulder movement, and also Miettinen was only used to teach of using different arm motions in an interface. Further Miettinen does not "teach away" from wrist rotation as Miettinen never states that wrist movememnt cannot be used. A reference does not teach away just because it does not teach something. Further on page 11, the applicant has stated that the obvious design choice is improper by stating that the examiner provides no evidence supporting a finding or obviousness. The examiner respectfully disagrees. Anderson teaches of using a combination of wrist and finger motion where Miettinen discloses using a combination of an elbow and shoulder, and thus one of ordinary skill in the art from the reading of these two references would realize that one could user any combination of motions they wish, such as that of an elbow and wrist. The examiner did not use the applicant's specification against them but rather used it as proof that the applicant does not consider this combination essential to the invention, and since it is not essential to the invention, the combination of Anderson and Miettinen would suggest to one of ordinary skill in the art that such a combination is possible.

On page 12 the applicant argues that the amendments to claims 16 and 22 to state "coincident to" is not taught by the references, specifically Anderson. The examiner respectfully disagrees. The claim 22 broadly recites "controls aligned coincident to the arc and controls aligned along a counter arc intersecting the motion arc at 90 degrees" while claim 16 broadly recites "a portion of the controls are aligned coincident to an arc intersecting the motion arc at 90 degrees". Thus the controls such as those shown in Figure 7a and 7b are "aligned" coincident to an arc that can be made

that is 90 degrees to the main circular arc shown in the Figures. Thus controls are aligned coincident to the arc and also coincident to/aligned along a "counter arc" that is 90 degrees to the main arc. Just because the text of the Anderson reference does not state that the controls are aligned coincident to any arc does not mean that Anderson does not teach the features of the claim. Figures 7a and 7b clearly show that if a user draws a line that is 90 degrees to the main circular arc that the controls shown would be "aligned" or "coincident" to such an arc. Just because Anderson does not purposefully align the controls to such an arc does not mean that the controls are not aligned to such an arc that can be made. If the applicant wishes for the claims to be specific to their invention, then the applicant should actually amend the claims to be more specific.

On page 13 the applicant argues that Ono, column 3, lines 16-24 does not teach that the arc is determined from the strokes of the plural users", however, these lines clearly state that "each individual", i.e. plural users, each make a stroke and then the menu is fitted to the arc. Clam 28 recites "wherein plural users are allowed to make strokes individually at different time" which is clearly taught, and then states "and the arc is determined from the strokes of the plural users" which is also clearly taught. The applicant seems to be asserting that the single arc menu is based upon a combination of the strokes of the users, however, this is not what is claimed. Even if in Ono the arc is refitted for each user, the arc is still determined from the strokes of the plural users because each use will determine their own arc. Thus Ono still teaches this limitation fo the claims.

On pages 13-14 the applicant argues new claims 39-41, and claim 39 corresponds to claim 32 while claim 40 corresponds to claim 30, and for the same reasons as mentioned above, the claims are properly taught by the references. New claim 41 states that there is a "horizontal" display and a "horizontal" surface, and the applicant argues that the claims are not taught by Anderson because the display is "vertical" and the surface is "horizontal", however, the specification nor the claims define what a "horizontal" display means, and as such the examiner has interpreted, as explained in the rejection below, that the display of Anderson is a "horizontal display" as claimed because the top surface of the display is "horizontal" to the writing surface.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed interface element graphic only aligned to a natural user motion of independent finger motion of claim 32 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 25 is objected to because the specification fails to provide antecedent basis for the claim terminology "computer readable storage".

Claim Rejections - 35 USC § 112

5. Claims 32-33 and 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 32 states: "an interface element graphic aligned with the control zone and indicating the function with the interface graphic and control zone only aligned to a natural motion of independent finger motion". This limitation was not described in the specification. The specification instead describes that the invention provides for used of a combination of a number of arcs, and using this combination to make a single arc, however, nowhere in the specification does not describe of using ONLY independent finger. Therefore, the limitations are not described in the specification in such a way to reasonably convey to one skilled in the art at the time the applicant was filed that the inventors has possession of the claimed invention.

Further, claim 33, which depends from claim 32, states that the control zone further comprises a zone access comprising one of an elbow motion curve, a wrist motion curve and a shoulder motion curve **in combination** with the finger motion, which means that there is a combination of motions, not just only independent finger motion.

Claim 39 states: "and the control zone aligned to a natural user motion of a static wrist and independent finger motion". This limitation is not described in the specification. Nowhere in the specification is it described that the control zone is aligned to a natural user motion of a static wrist and independent finger motion. Therefore, the limitations are not described in the specification in such a way to reasonably convey to one skilled in the art at the time the applicant was filed that the inventors has possession of the claimed invention.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 32-33 and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al. (US 5,828,360).

Regarding claim 32, Anderson et al. disclose a display, comprising:

a control zone for a function of an interface (Figure 3 shows the disc menu 30, with section 32 which is a control zone.); and

an interface element graphic aligned with the control zone and indicating the function with the interface graphic (Figure 3 shows that every interface element shown on control zone 32, such as square, circle, line, etc. indicates the function of the element.), and

the control zone only aligned to a natural user motion of independent finger motion (Figure 3 shows the controls 32 require only independent finger motion relative to the movement of the wrist, meaning that that controls 32 are positionally aligned to allow for a natural motion of independent finger motion to be used. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be

accessed without lifting a wrist. This means that when the control zone 32 is present, the only way for a user to reach these options without using the wrist is to use only finger motion, since a wrist motion will not allow the user to select the elements such as those close to the center.).

Regarding claim 33, Anderson et al. disclose a display as recited in claim 32, wherein the control zone further comprises a zone access comprising one of an elbow motion curve, a wrist motion curve and a shoulder motion curve in combination with the finger motion (Figures 2a, 2b and 3 show that the wrist moves, therefore there is a zone access motion that is based on a wrist motion, meaning that the entire motion is based on a combination of these two motions.).

Regarding claim 38, Anderson et al. disclose a display, comprising:

an arc shaped control zone for a function of an interface (Figure 3 shows the disc menu 30, with section 31 which is a control zone that is arc shaped.); and

an arc shaped interface element graphic aligned with the control zone and indicating the function with the arc shaped interface graphic (Figure 3 shows that interface element 31a-31h is arc shaped and is aligned with the control zone and indicates the function of the element, such as icon, scan, send, call, etc.),

and the arc shaped control zone aligned to a natural user motion produced only by rotation of a user wrist (Figure 3 shows the controls 31 require only wrist motion, meaning that that controls 31 are positionally aligned to allow for a natural motion of

only the wrist to be used. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist.).

Regarding claim 39, please refer to the rejection of claim 32, where if only the finger motion is used as described with respect to claim 32 then the wrist would be "static".

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-23, 25, 29-31, 34-37 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 5,828360) in view of Miettinen et al. (US 2002/0054175).

Regarding claim 1, Anderson et al. disclose a display located on a single side of a user (Figures 1-3 show that the display is located only on a single side of the user.), comprising:

an arc shaped control zone for a function of an interface located on the single side (Figure 3 shows the disc menu 30 which in its entirety is an arc shaped control zone.); and

an arc shaped interface element graphic located on the single side, aligned with the arc shaped control zone (Figure 3 shows that the disc menu 30 has an arc, and that the menu comprises interface elements 31a through 31h as well as the interface elements located within area 32 which are arranged in an arc shape around the control zone.) and indicating the function with the arc shaped interface graphic (Figure 3 shows that every interface element 31a-31h indicated the function of the element, i.e. scan, send call, etc. while the elements in area 32 represent square, circle, line, etc. such that the arc shaped interface graphic indicates the function.) and

the arc shaped control zone aligned to a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion

produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of rotation of the user elbow and rotation of a user wrist.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is

not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to "one of ordinary skill" in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 2, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the alignment orients the graphic and zone with the motion (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 3, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the alignment follows the natural user motion (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 4, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the alignment positions the graphic and zone at a location accessible via the natural user motion (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 5, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose wherein the natural user motion comprises a curve determined by one or more strokes of the user on the display (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above.).

Regarding claim 6, Anderson et al. and Miettinen et al. disclose a display as recited in claim 5.

Anderson et al. also disclose wherein the curve includes natural motion variations (Figures 2a and 2b show the menu is aligned with a motion of a user, as explained above, where variations between a left handed and right handed person may be taken into account as explained in Figures 4a and 4b.).

Regarding claim 7, Anderson et al. and Miettinen et al. disclose a display as recited in claim 5.

Anderson et al. also disclose wherein the natural motion stroke additionally comprises a finger motion curve, a shoulder motion curve and a combination of two or

more curves (As explained with reference to claim 1, the control area 32 is based upon finger motion.).

Regarding claim 8, Anderson et al. and Miettinen et al. disclose a display as recited in claim 7.

Anderson et al. also disclose wherein the curve is a curve determined by a single user (Figure 2a and 2b show that there is only a single user using the menu and therefore the curve is only based upon one user.).

Regarding claim 9, Anderson et al. and Miettinen et al. disclose a display as recited in claim 1.

Anderson et al. also disclose a display further comprising an interface location at which the zone and graphic are positioned (Figures 5a and 5b shows that an interface location is where the zone and graphic are positioned.).

Regarding claim 10, Anderson et al. and Miettinen et al. disclose a display as recited in claim 9.

Anderson et al. also disclose wherein the interface location is specified by a cursor positioned by the user (Figures 5a and 5b show that the menu is located based upon where the cursor 54 is positioned.).

Regarding claim 11, Anderson et al. disclose a graphical user interface, comprising:

a cursor positioned on a display by a user at a location the display located on a single side of a user (Figures 5a and 5b show a cursor 54 at a location specified by a user. Figures 1-3 show that the display is located only on a single side of the user.); and

a function control positioned on the display responsive to the location of the cursor (Figures 5a and 5b show that the menu 53 is positioned on the display 50 based on the position of the cursor 54.), and

having an arc shaped interface graphic indicating a function of the control (Figure 3 shows the disc menu 30 which in its entirety is an arc shaped control zone and Figure 3 shows that every interface element 31a-31h indicated the function of the element, i.e. scan, send call, etc. while the elements in area 32 represent square, circle, line, etc.), and

having an arc shape conforming to a motion arc of a hand caused by a compound motion of an hand about a wrist of the user and the fingers of the user (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a

user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the function control has an arc shape conforming to a motion arc of a hand caused by a compound motion of an arm about an elbow of the user and the hand about a wrist of the user.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to "one of ordinary skill" in the art at the time the invention was made to align the interface

to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 12, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose wherein the control comprises plural controls and the controls are aligned along the arc (Figures 3, 5a and 5b show that there are plural controls 31a-31h that are aligned around the arc.).

Regarding claim 13, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein a default control is positioned under the cursor at a particular instance (Figure 3 shows that the controls 31a-31h, which are default controls to the menu, can be positioned under the cursor at a particular instance in which a user moves the cursor over the control.).

Regarding claim 14, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein the controls can be one of re-oriented and moved (Figures 5a and 5b show that the menu can be moved.).

Regarding claim 15, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein controls are oriented and shaped to conform to a wrist arc caused by a hand moving about a wrist of the user (As expaliend above, Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist.).

Regarding claim 16, please refer to the rejection of claim 11, where Anderson also discloses that a portion of the controls are aligned coincident to an arc intersecting the motion arc at 90 degrees (Figures 7a and 7b show that there are arcs 73 of the sub-options that are 90 degrees from the outer-circle arc, thus they are "coincident" to an arc intersecting the motion arc at 90 degrees.).

Regarding claim 17, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose wherein the control comprises plural controls (Figure 3, controls 31a-31h.) and the shape of the sides of each of the controls is one of rectilinear, arc shaped, wedge shaped and triangular shaped (Figures 3 and 8 show that

each of the controls can be characterized as being rectilinear, arc shaped, wedge shaped and triangular shaped.).

Regarding claim 18, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose the interface further comprising an overflow interface positioned responsive to the motion arc (Figure 3 shows overflow interface 32 which is positioned responsive to the motion arc.).

Regarding claim 19, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11.

Anderson et al. also disclose wherein text of the control is rectilinear aligned with a display (Figures 3, 5a and 5b show that the text of the control such as Send, Call and ABC are rectilinear with a display.).

Regarding claim 20, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 19.

Anderson et al. also disclose wherein the overflow interface is natural motion arc shaped (Figure 3.).

Regarding claim 21, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 12.

Anderson et al. also disclose wherein the control is oriented to an extended arc (Figure 3 shows that the arc is "extended" into a circular shape.).

Regarding claim 22, please refer to the rejection of claims 6, 16 and 18, and further more Anderson et al. also disclose wherein a default control is positioned under the cursor (Figures 5a and 5b show that the default center control for controlling the position of the interface is located underneath the cursor.).

Regarding claims 23 and 25, Anderson et al. disclose a method and a computer readable storage for controlling a computer, comprising:

determining a position of a cursor as designated by a user (Figures 5a and 5b show that the position of the cursor 54 is determined on the screen.), and

positioning an arc shaped graphical user interface on a single side of a user responsive to the position where the arc of the shape is defined by a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion,

and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of an arm about an elbow and a hand about a wrist of the user.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to "one of ordinary skill" in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 29, Anderson et al. disclose an apparatus, comprising:

a display on a single side of a user (Figure 1, item 11. Figures 1-3 show that the display is located only on a single side of the user.); and

a computer producing an arc shaped graphical user interface on the display where the arc of the shape is defined by a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of an arm about an elbow and a hand about a wrist of the user.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for

access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to "one of ordinary skill" in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 30, Anderson et al. disclose a display, comprising:

a control zone for a function of an interface on a single side of a user (Figure 3 shows the disc menu 30 which is an arc shaped control zone. Figures 1-3 show that the display is located only on a single side of the user.); and

an interface element graphic aligned with the control zone and indicating the function with the interface graphic (Figure 3 shows that the menu comprises interface elements 31a through 31h and 32 which are arranged in an arc shape around the

control zone. Figure 3 shows that every interface element 31a-31h and 32 indicated the function of the element, i.e. scan, send call, square, circle, etc.), and

the control zone aligned to a natural user motion produced by a compound motion of a rotation of the user wrist and the user fingers (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion, meaning that that controls 31 and 32 are positionally aligned to allow for a natural motion produced by the combination of a wrist and fingers. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion, and therefore, the entire menu 30 is based upon a compound motion of a users wrist and fingers.).

Anderson et al. fail to explicitly teach that the arc is aligned to a natural user motion produced by a compound motion of an elbow motion and a wrist motion.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion produced by rotation of a user elbow and rotation of a user shoulder (Figure 1 and paragraph [0066] explains that there are two areas in the interface, one for access of moving the arm with the elbow bent, i.e. rotation of the elbow, and one for a straight arm rotation, i.e. shoulder.).

Therefore, since Anderson et al. and Miettinen et al. both teach of arc shaped interfaces aligned to a user natural motion, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute one natural

motion for another natural motion in order to achieve the predictable result of aligning the interface to a natural motion.

Although the combination of Anderson et al. and Miettinen et al. fails to explicitly teach the combination of the rotation of the elbow and the rotation of the wrist, since it is not described as being essential to the invention and in fact the applicant states that any combination of curves could be used, it would have been an obvious design choice to "one of ordinary skill" in the art at the time the invention was made to align the interface to any combination of natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 31, Anderson et al. and Miettinen et al. disclose a display as recited in claim 30.

Anderson et al. also disclose wherein the user natural motion stroke comprises one of an a wrist motion curve, a finger motion curve and a shoulder motion in combination with the elbow motion (As explained with reference to claim 1, the control area 32 is based upon finger motion.).

Regarding claim 34, Anderson et al. disclose a display, comprising:

a control zone for a function of an interface (Figure 3 shows the disc menu 30, with section 32 which is a control zone.); and

an interface element graphic aligned with the control zone and indicating the function with the interface graphic (Figure 3 shows that every interface element shown

on control zone 32, such as square, circle, line, etc. indicates the function of the element.), and

the control zone aligned to a natural user motion of a finger motion or a wrist motion (Figure 3 shows the controls 31 require wrist motion while controls 32 require finger motion. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist, while the only way for a user to reach the options of menu 32 without using the wrist is to use only finger motion.).

Anderson et al. fail to teach the control zone aligned to a natural user motion of a shoulder motion.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion of a shoulder motion (Figure 1 and paragraph [0066] explains that there is an interface for a straight arm rotation, i.e. shoulder.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute the motion taught by Anderson et al. with the motion taught by Miettinen et al. in order to align the interface to any natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 35, Anderson et al. and Miettinen et al. disclose a display as recited in claim 34.

Anderson et al. also disclose wherein the user natural motion stroke comprises one of an elbow motion curve, a wrist motion curve and a finger motion curve in combination with the shoulder motion (As explained with reference to claim 1, the control area 32 is based upon finger motion.).

Regarding claim 36, this claim is rejected under the same rationale as claims 1 and 11.

Regarding claim 37, Anderson et al. disclose a display, comprising:

an arc shaped control zone for a function of an interface (Figure 3 shows the disc menu 30, with section 31 which is a control zone that is arc shaped.); and

an arc shaped interface element graphic aligned with the control zone and indicating the function with the arc shaped interface graphic (Figure 3 shows that interface element 31a-31h is arc shaped and is aligned with the control zone and indicates the function of the element, such as icon, scan, send, call, etc.),

and the arc shaped control zone aligned to a natural user motion produced only by rotation of a user wrist (Figure 3 shows the controls 31 require only wrist motion, meaning that that controls 31 are positionally aligned to allow for a natural motion of only the wrist to be used. This is supported by the explanation found in column 5, lines 6-8 which explain that the menu can be accessed without lifting a wrist. This means that if the wrist is not lifted that the only way to access the element only the arc 31 is to move the wrist.).

Anderson et al. fail to teach the control zone aligned to a natural user motion produced by only rotation of a user elbow.

Miettinen et al. disclose of an arc shaped control zone that is aligned to a natural user motion of a shoulder motion (Figure 1 and paragraph [0066] explains that there is an interface for an arm rotation bent at the user elbow, i.e. elbow motion.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to substitute the motion taught by Anderson et al. with the motion taught by Miettinen et al. in order to align the interface to any natural motion for the arm for operating a stylus/mouse in order to facilitate the use of the interface depending upon the platform or facility it is used.

Regarding claim 40, this claim is rejected under the same rationale as claim 30.

Regarding claim 41, Anderson et al. and Miettinen et al. disclose an interface as recited in claim 11, wherein the cursor is positioned on a horizontal display and the compound motion is performed on a horizontal surface (Figure 1 of Anderson shows display 11 which will have a cursor positioned on it, where this display is a "horizontal display" as claimed because the top surface of the display is "horizontal" while the compound motion will be performed on 15, which is a "horizontal" surface. [the claim nor the specification define a "horizontal" display and as such the examiner has used the broadest reasonable interpretation possible]).

11. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 5,828,360)in view of Miettinen et al. (US 2002/0054175) and further in view of Ono (US 5,559,944).

Regarding claim 26, please refer to the rejection of claim 1, and furthermore Anderson et al. and Miettinen et al. fail to teach:

allowing a user to make strokes with an input device;

determining an arc from the strokes; and

laying out a graphical user interface, including controls, to conform to the arc.

Ono discloses of a method comprising:

allowing a user to make strokes with an input device with the input device located on a single side of a user (Fig. 7. Figures 6 and 11 shows that the display is located on a single side of the user.);

determining an arc from the strokes (Fig. 7); and

laying out a graphical user interface, including controls, to conform to the arc (see col. 3, lines 16-24).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to allow the user to make the arc shaped graphic taught by the combination of Anderson et al. and Miettinen et al. be determined by an individual user as taught by Ono in order to allow for calibration of the system such that each user can have a more comfortable interface aligned to their own personal natural motion.

Regarding claim 27, Anderson et al., Miettinen et al. and Ono disclose a method as recited in claim 26.

Anderson et al. also disclose a method comprising:

determining a position of a cursor specified by the user (Figures 5a and 5b show that the position of the cursor 54 is determined on the screen.); and

positioning the interface responsive to the position (Figures 5a and 5b show that the position of the arc shaped menu interface 53 is responsive to the position of the cursor 54.); and

allowing the user to activate a function of the interface (Figures 3, 5aand 5b show that the user can use the cursor to activate one of the items 31 on the interface.).

Regarding claim 28, Anderson et al., Miettinen et al. and Ono disclose a method as recited in claim 26.

Ono also discloses wherein plural users are allowed to make strokes individually at different times and the arc is determined from the strokes of the plural users (Column 3, lines 16-24 explain that each individual, i.e. plural users, make arcs and then the arc the menu is obtained by using these strokes.).

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (US 5,828360) in view of Miettinen et al. (US 2002/0054175) and further in view of Ono et al. (US 5,559,944).

Regarding claim 24, Anderson et al. and Miettinen et al. disclose a method as recited in claim 23.

Anderson et al. and Miettinen et al. fail to teach the method further comprising determining whether the user has specified a custom arc and positioning one of a custom and standard arc shaped interface responsive to the determination.

Ono et al. disclose a method further comprising determining whether the user has specified a custom arc (Column 3, lines 16-24) and positioning one of a custom and standard arc shaped interface responsive to the determination (Column 3, lines 16-24, where the custom arc shaped interface is positioned.).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to make the arc shaped interface taught by the combination of Anderson et al. and Miettinen et al. have a user customized arc shaped as taught by Ono et al. in order to allow for a user to use the interface without causing an unnatural force.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN G. SHERMAN whose telephone number is (571)272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen G Sherman/
Examiner, Art Unit 2629

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629

19 November 2008